Marketing TC Messages: What Can We Learn from "Mad Men"?

Betty Morrow, Ph.D.

Risk Communication Webinar

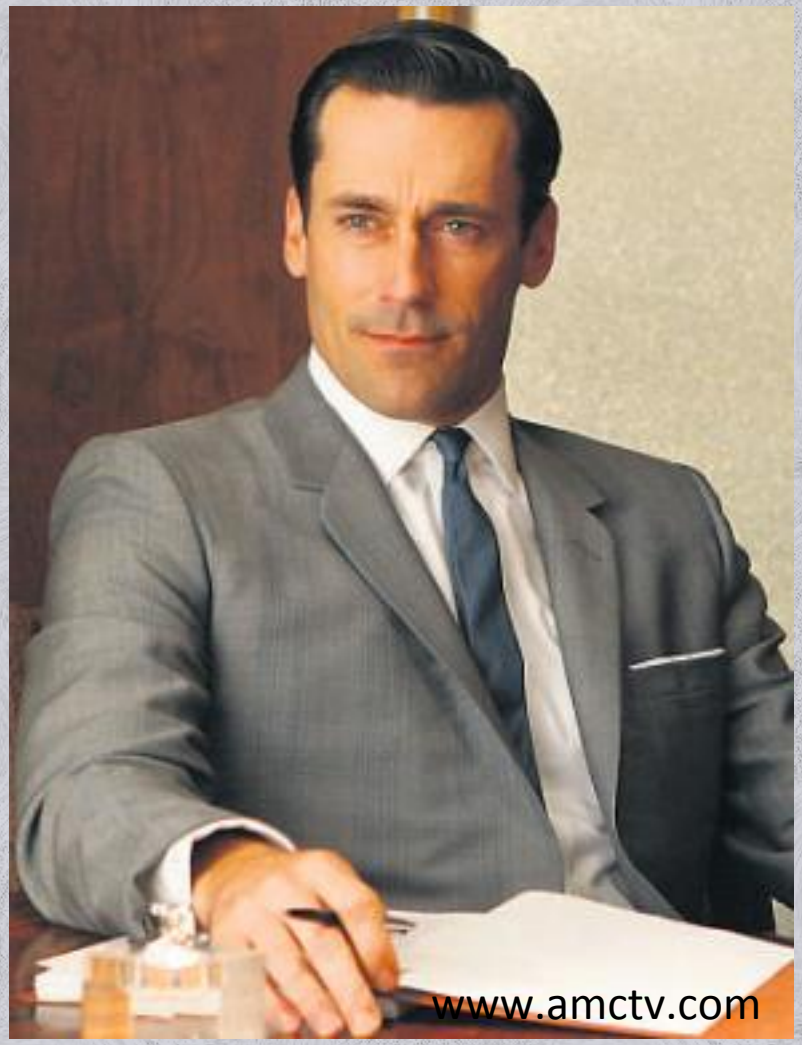
June 26, 2014

TOPICS:

- Risk Perception
- Risk Communication Strategies
  - Forecast Messaging
  - Outreach Activities
- Social Science Research on TC Products
- Social Marketing

TROPICAL CYCLONE EXAMPLES

What would Don Draper do?



MARKETING PRINCIPLES:

1. Select the target audience and desired behavior
2. Identify the barriers and benefits
3. Develop strategies
4. Pilot the strategies
5. Implement and evaluate

SOCIAL MARKETING –

Instead of economic profits, it seeks to change behavior for the public good

SOCIAL MARKETING

1. Select the targeted audience and desired behavior.

WHO are you most concerned about?
What response do you want to promote?

POSSIBLE TARGETS:

People living in surge zones → Evacuation

Elderly living in high rises → Evacuation

People not at risk from flooding → Shelter in Place

The Target


What makes a Lucky taste better?
"IT'S TOASTED" to taste better!
LUCKIES TASTE BETTER
Cleaner, Fresher, Smoother!
LUCKY STRIKE

2. Identify the barriers and benefits

WHY don't they respond the way we think they should?

Don't they understand the forecast?
Don't they understand the risk?
How does their past experience influence their attitudes?
Do they have what's needed to respond?

- Do background research

COASTAL COUNTY SNAPSHOTS
www.csc.noaa.gov/snapshots/

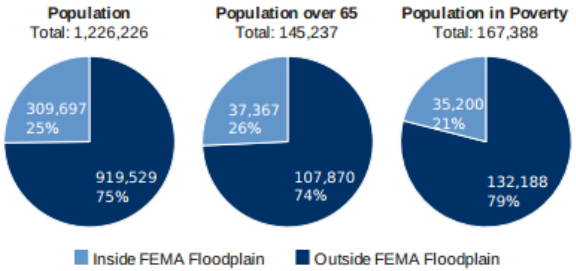
Flood Exposure Snapshot

Hillsborough County, Florida

People + Floodplains = Not Good
High-Risk Populations + Floodplains = Even Worse

The more homes and people located in a floodplain, the greater the potential for harm from flooding. Impacts are likely to be even greater when additional risk factors (age, income, capabilities) are involved, since people at greatest flood risk may have difficulty evacuating or taking action to reduce potential damage.

Based on 2010 U.S. Census records and 2006-2010 American Community Survey 5-year Summary File data.

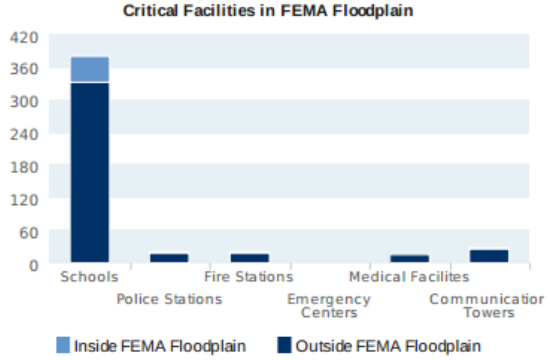


Community Infrastructure + Floodplains = Bad News

12% of critical facilities and 16% of road miles (1203 miles) in Hillsborough County, Florida, are within the floodplain.

Hospitals. Roads. Schools. Shelters. These facilities play a central role in disaster response and recovery. Understanding which facilities are exposed, and the degree of that exposure, can help reduce or eliminate service interruptions and costly redevelopment. Incorporating this information into development planning helps communities get back on their feet faster.

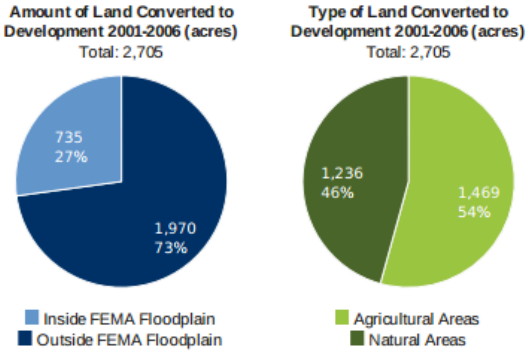
Based on Critical Facilities from FEMA HAZUS.



Increasing Development in Floodplains = More People in Harm's Way
Loss of Natural Buffers = Less Protection

A county with more natural areas (wetlands, forests, etc.) and less development within floodplains typically has lower exposure to flooding. A county that monitors land cover changes within the floodplain will detect important trends that indicate whether flood exposure is increasing or decreasing. Armed with this information, local leaders can take steps to improve their safety and resilience.

Based on NOAA Land Cover Data.



Last Updated: June, 2014

NOAA Coastal Services Center
LINKING PEOPLE, INFORMATION, AND TECHNOLOGY

Good data source:

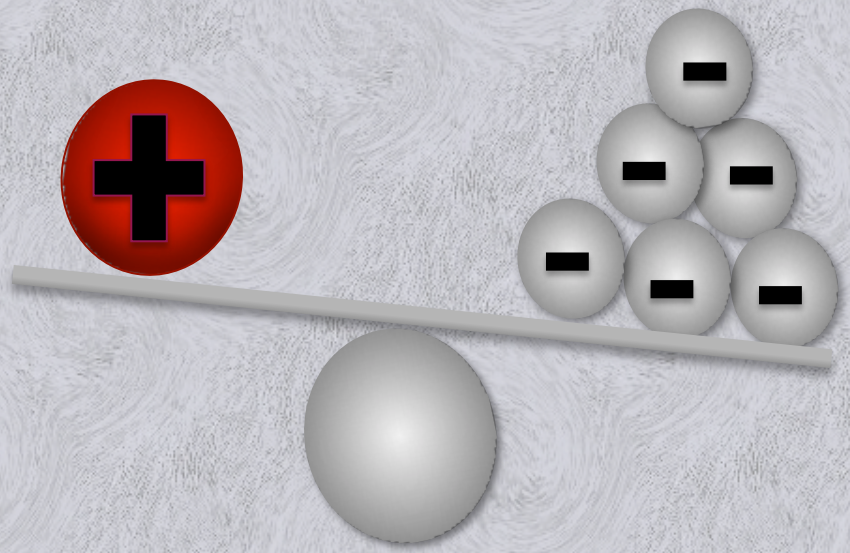
Coastal County Snapshots

http://www.csc.noaa.gov/digitalcoast/tools/snapshots

- Ask questions

WHY don't they plan to evacuate?

Many reasons
NOT to leave



How do they perceive their risk from storm surge?

Risk Perception Is Complex!

Hazard – *Do they understand surge?*

In one exploratory study, only 2 out of 33 coastal emergency managers believed that residents in their region understood surge (Morrow 2007)

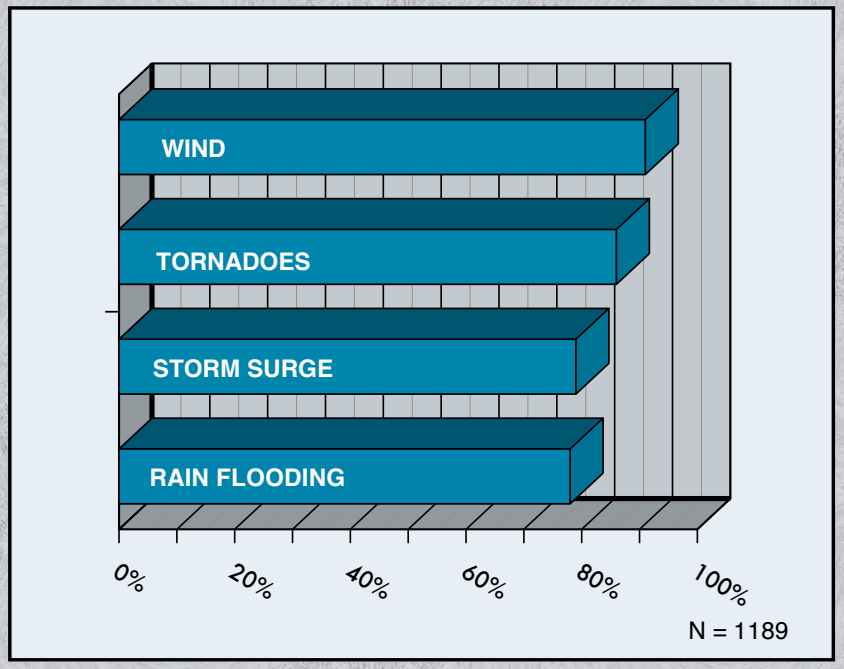
"I don't think they understand how bad it can be"

"For anyone to think that staying near the Gulf is a good idea even after Camille I can't believe people understand the threat."

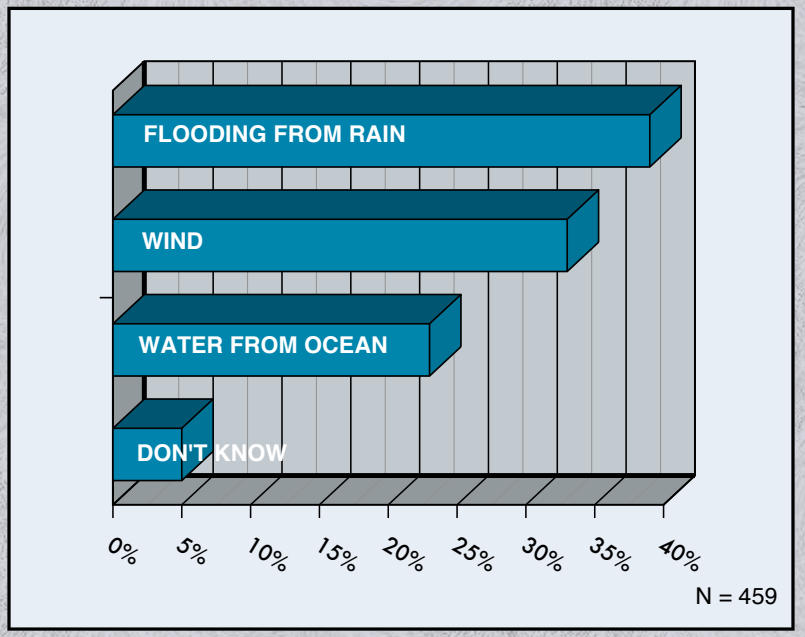
"I don't think they understand the actual surge that comes in off the ocean…I don't think they realize how water could come inland."

"I don't think they understand the force of surge."

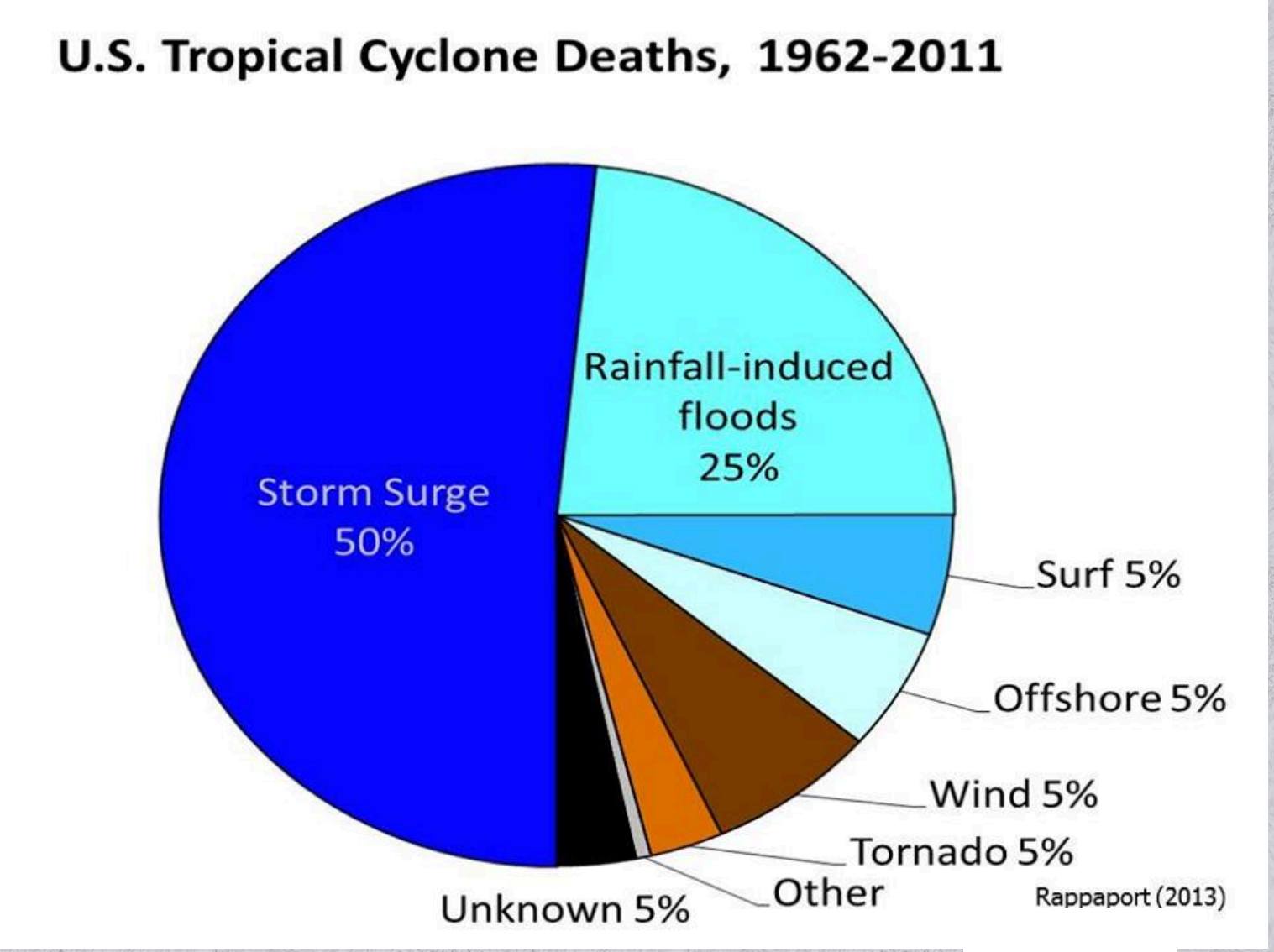
Public Opinion About What Hurricane Hazard Causes the Most Deaths



Lazo, J. K. 2010. HFIP-SEIA Storm Surge Panel Survey. "Likelihood of Deaths from Major Hurricane" NCAR.



Morrow, B. H. and L. Nadeau. 2012. Coastal Public On-Line Survey on Tropical and Extratropical Cyclone Forecast Communication Products – Report to NOAA from Eastern Research Group, Inc.



Rappaport, E.N., 2014. "Fatalities in the United States from Atlantic Tropical Cyclones – New Data and Interpretation." *Bulletin of the American Meteorological Society* 95:341-346.

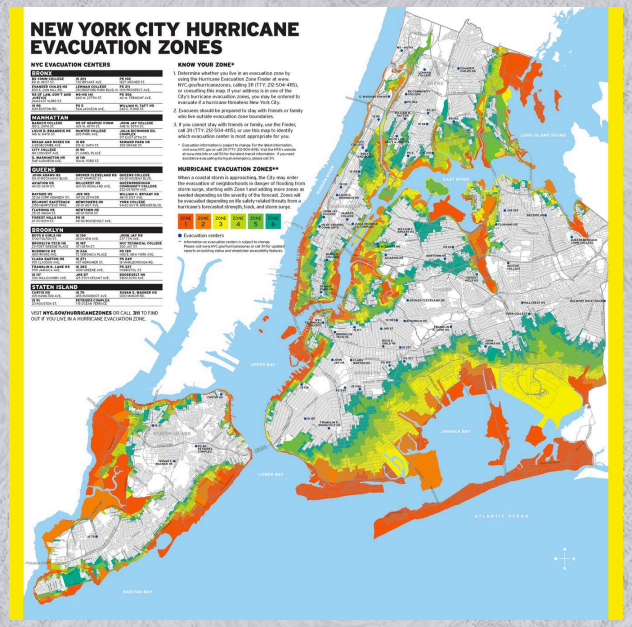
Risk Perception Is Complex!

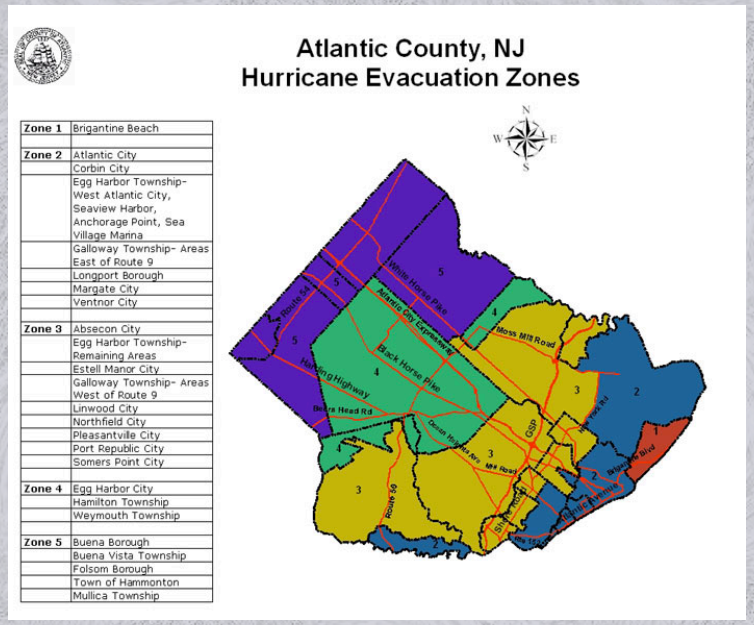
Hazard– *Do they understand surge?*

X Exposure – *Do they understand their exposure?*

X Probability

X Personal Factors

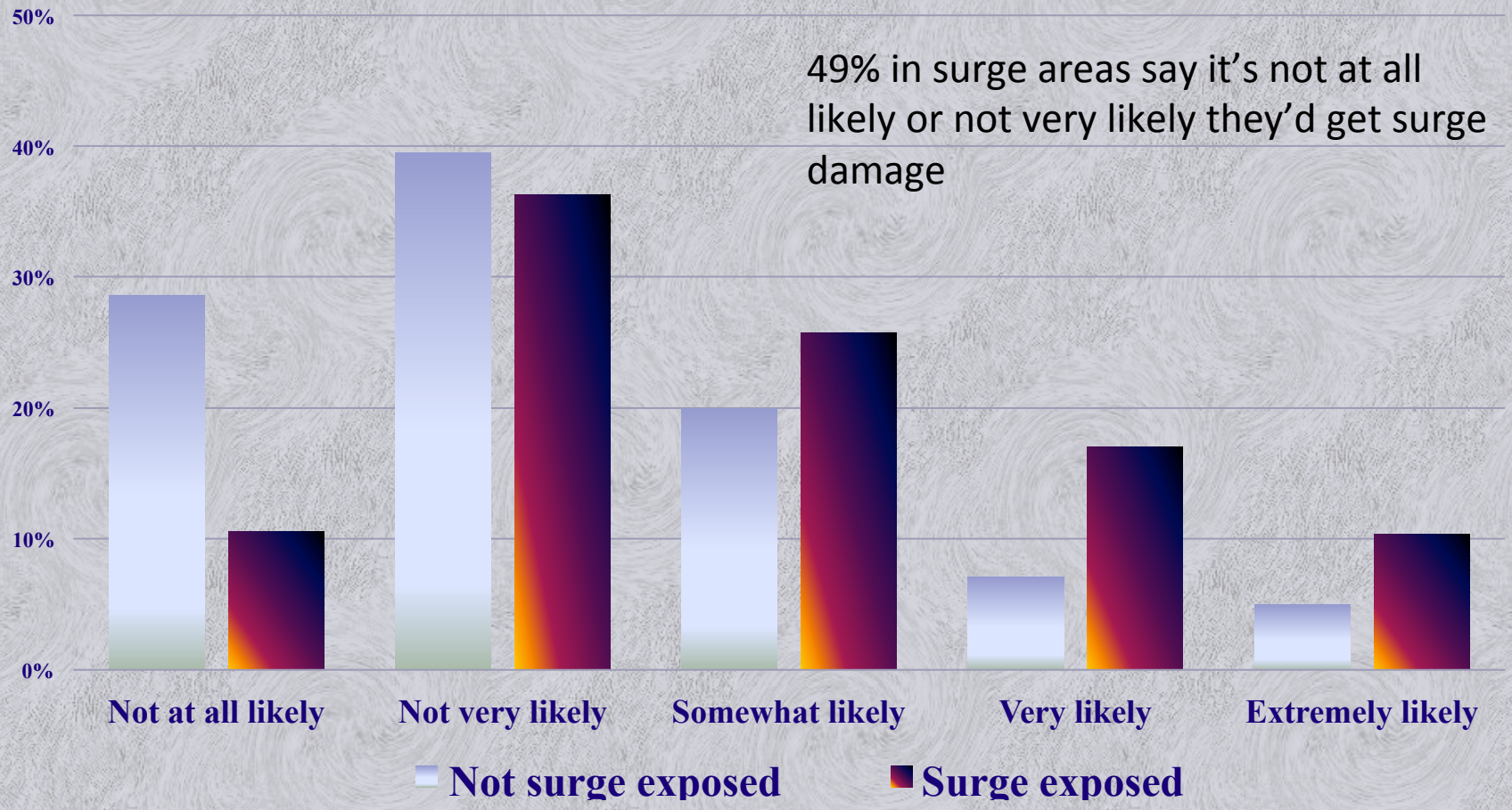




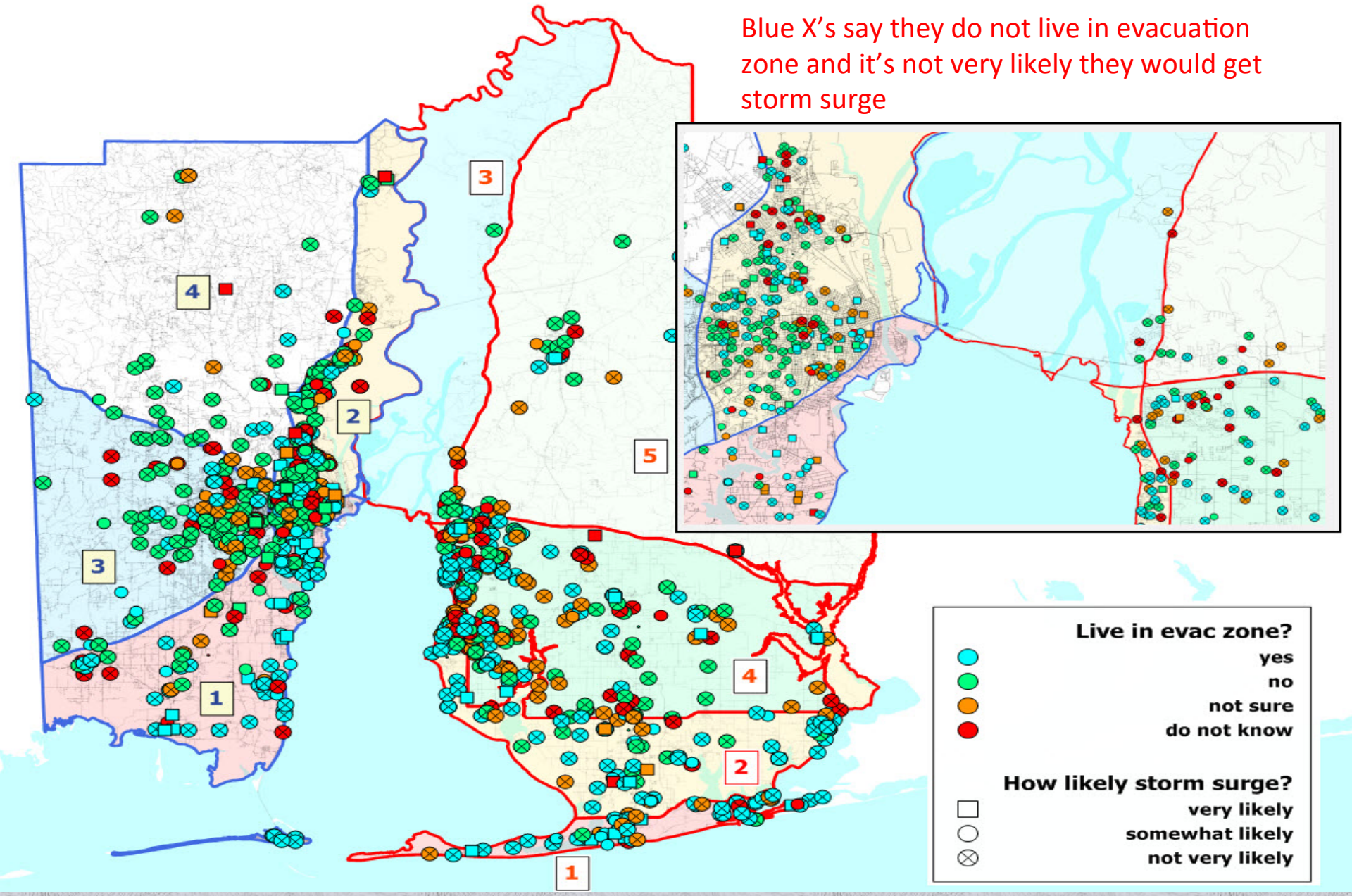
Zone 1	Brigantine Beach
Zone 2	Atlantic City
	Corbin City
	Egg Harbor Township- West Atlantic City, Seaview Harbor, Anchorage Point, Sea Village Marina
	Galloway Township- Areas East of Route 9
	Longport Borough
	Margate City
	Ventnor City
Zone 3	Absecon City
	Egg Harbor Township- Remaining Areas
	Estell Manor City
	Galloway Township- Areas West of Route 9
	Linwood City
	Northfield City
	Pleasantville City
	Port Republic City
	Somers Point City
Zone 4	Egg Harbor City
	Hamilton Township
	Weymouth Township
Zone 5	Buena Borough
	Buena Vista Township
	Folsom Borough
	Town of Hammonton
	Mullica Township

Do people know if they live in a surge or evacuation zone?

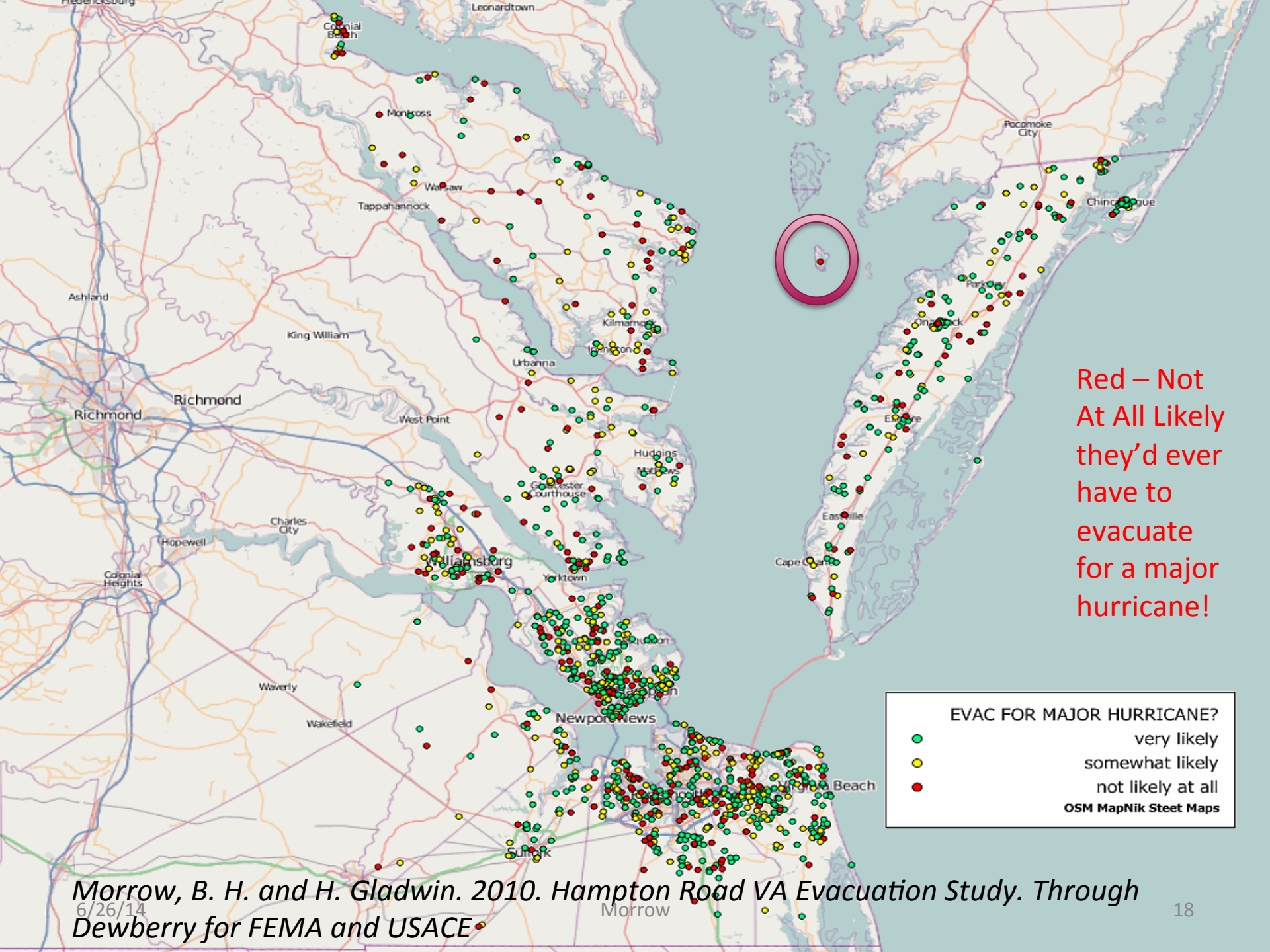
Likelihood of Surge Damage by Surge Exposure



Lazo, J. K. and Morrow, B. H. 2010. HFIP TC Coastal Residents Survey



Morrow, B. H. and H. Gladwin. 2011. Coastal Alabama Behavioral Survey. Through Dewberry for FEMA and USACE



Morrow, B. H. and H. Gladwin. 2010. Hampton Road VA Evacuation Study. Through Dewberry for FEMA and USACE

Risk Perception Is Complex!

Hazard– *Do they understand surge?*

X Exposure – *Do they understand their exposure?*

X Probability – *Do they understand uncertainty?*

X Personal Factors

EXPRESSING UNCERTAINTY

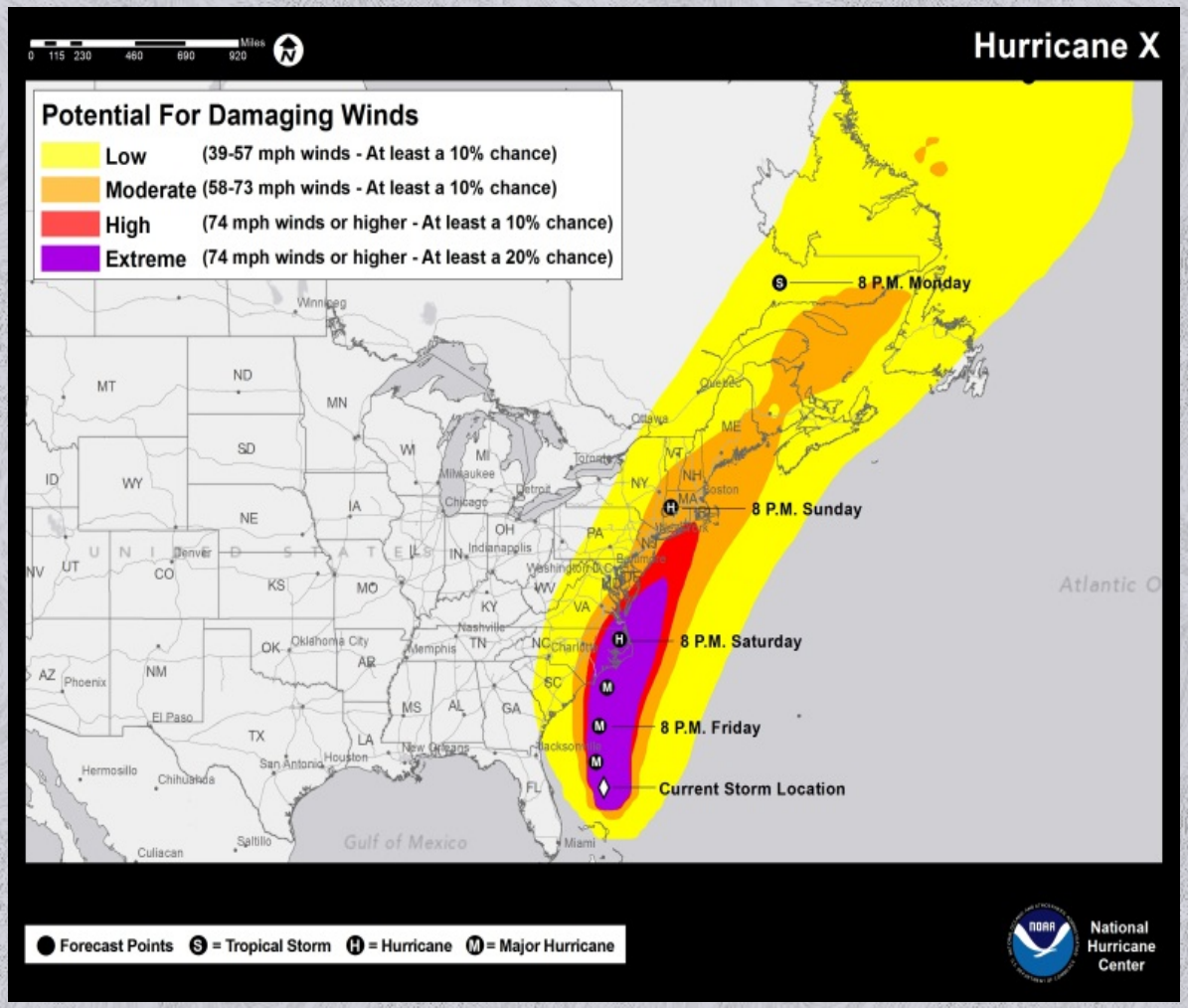
People tend to react more appropriately to use of numbers as opposed to general descriptions such as Low, Moderate, High.

Qualitative difference between 10% chance of rain and 10% chance of up to 3 feet of storm surge

Research supports saying "1 chance in 10 of up to 3 feet of surge above ground level at this location" as opposed to 10% chance.

- Be transparent about uncertainty in forecast
- Emphasize what COULD happen

➢ Provide probabilities?



Risk Perception Is Complex!

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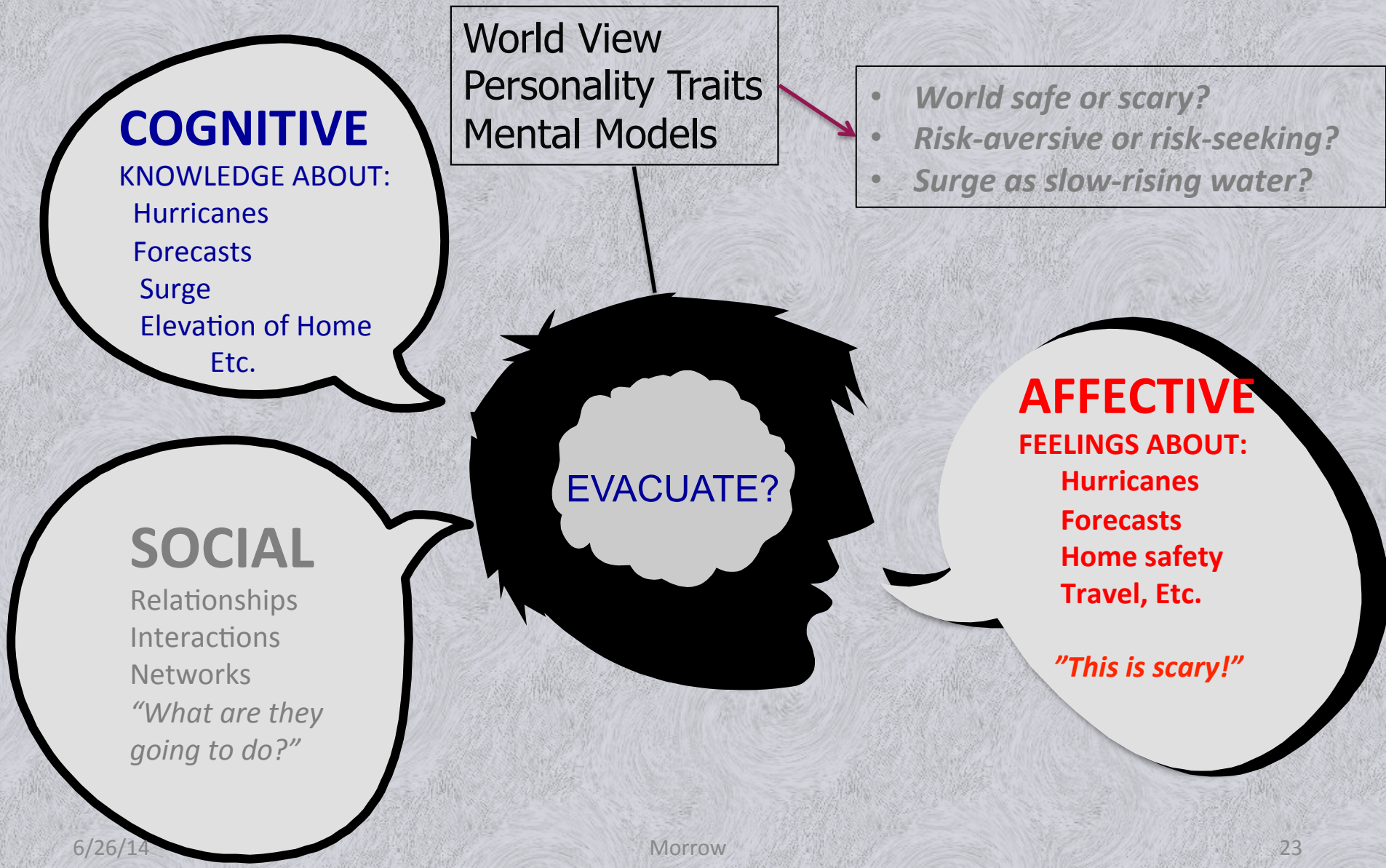
X Probability – *Do they understand uncertainty?*

X Personal Factors

Risk Perception is a Social Construction



Risk Perception =

Hazard Information + Emotional Factor

"the risks that kill you are not necessarily the risks that anger and frighten you"

Peter Sandman

SOCIAL MARKETING

1. Select the targeted audience and desired behavior.

2. Identify the barriers and benefits

3. Develop strategies

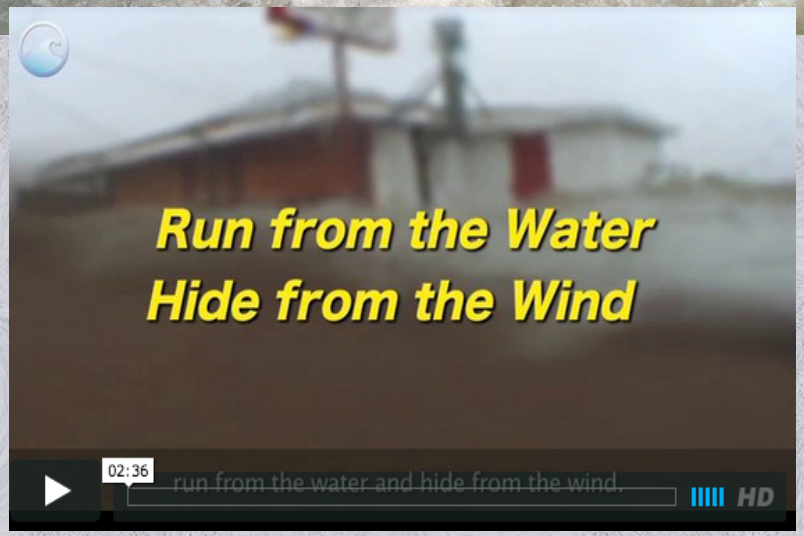
STEPS TO EFFECTIVE RISK COMMUNICATION

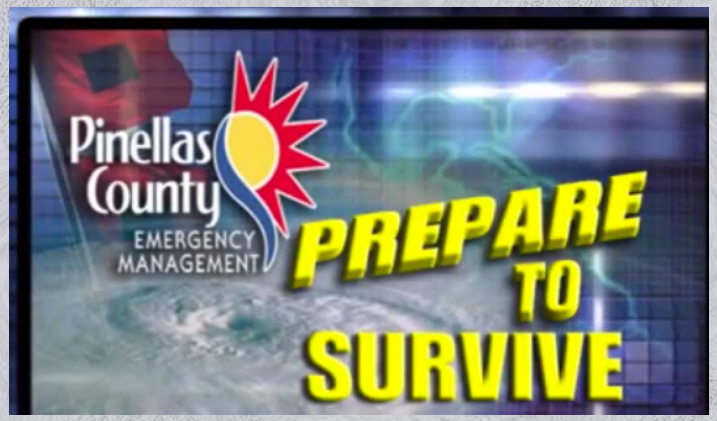
UNDERSTAND HAZARD	RECEIVE & UNDERSTAND MESSAGE	PERCEIVE RISK	BELIEVE IT APPLIES TO THEM	KNOW WHAT TO DO
Videos, flyers, photos, other educational materials	Simple language, multiple modes & channels	Vivid impacts & examples	Local maps, photos, examples	Clear action statements, response options

RESOURCES

Appropriate Protective Action

What will get our their attention?





http://www.nhc.noaa.gov/surge/resources.php

- Keep it simple

Catchy Slogans

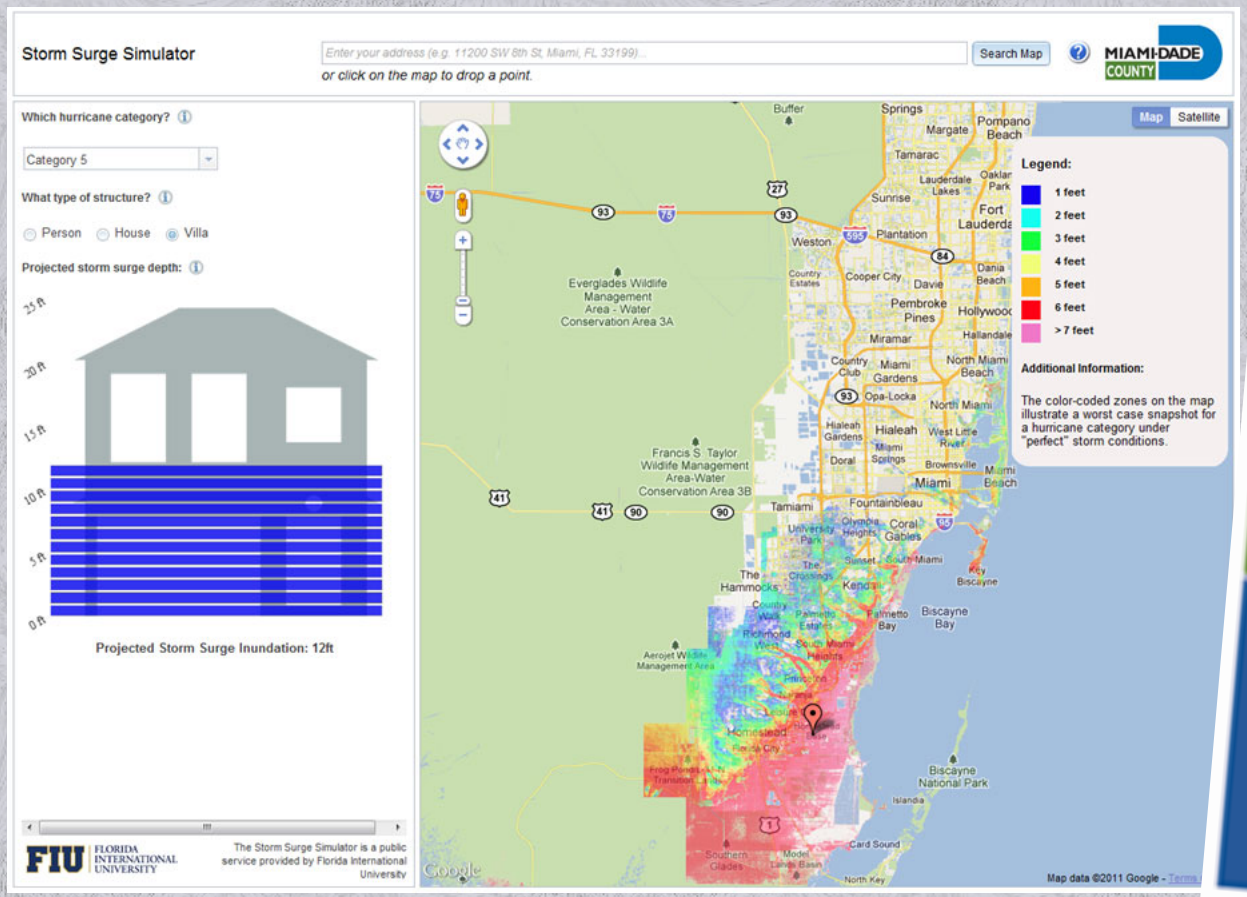
Surge Kills !

Run from water,
Hide from wind

Turn around, Don't drown

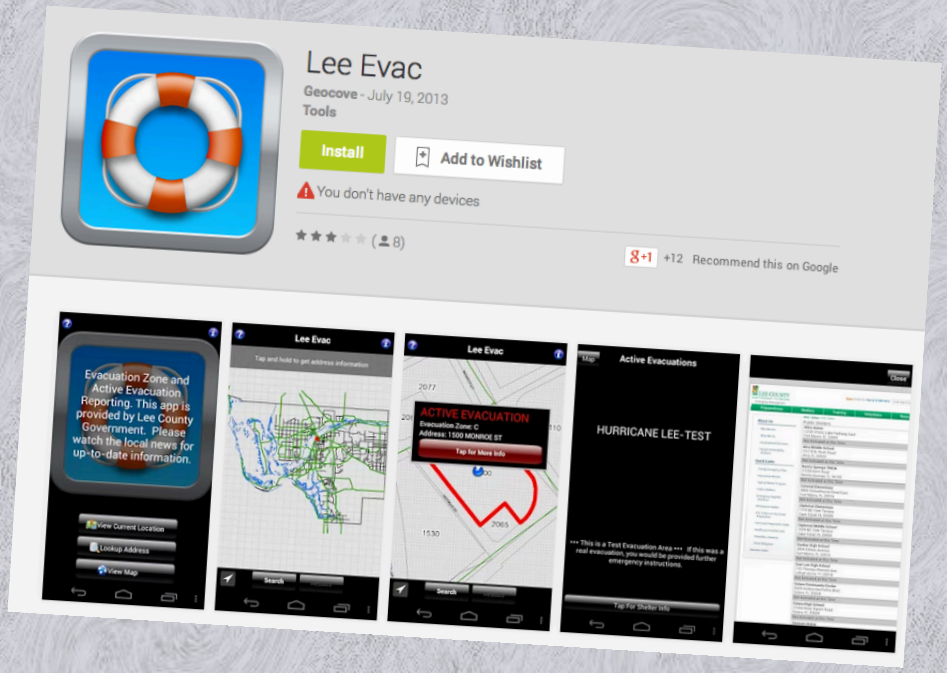
Pictographs

➢ Personalize the message



EVACUATION ZONE INFORMATION

Collier County FL



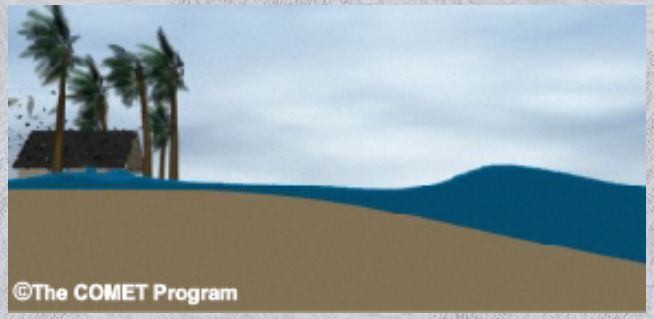
Lee County FL

Coastal Inundation Toolkit

www.csc.noaa.gov/inundation

➢ Use resources to deliver surge message

Animations



http://www.nhc.noaa.gov/surge/

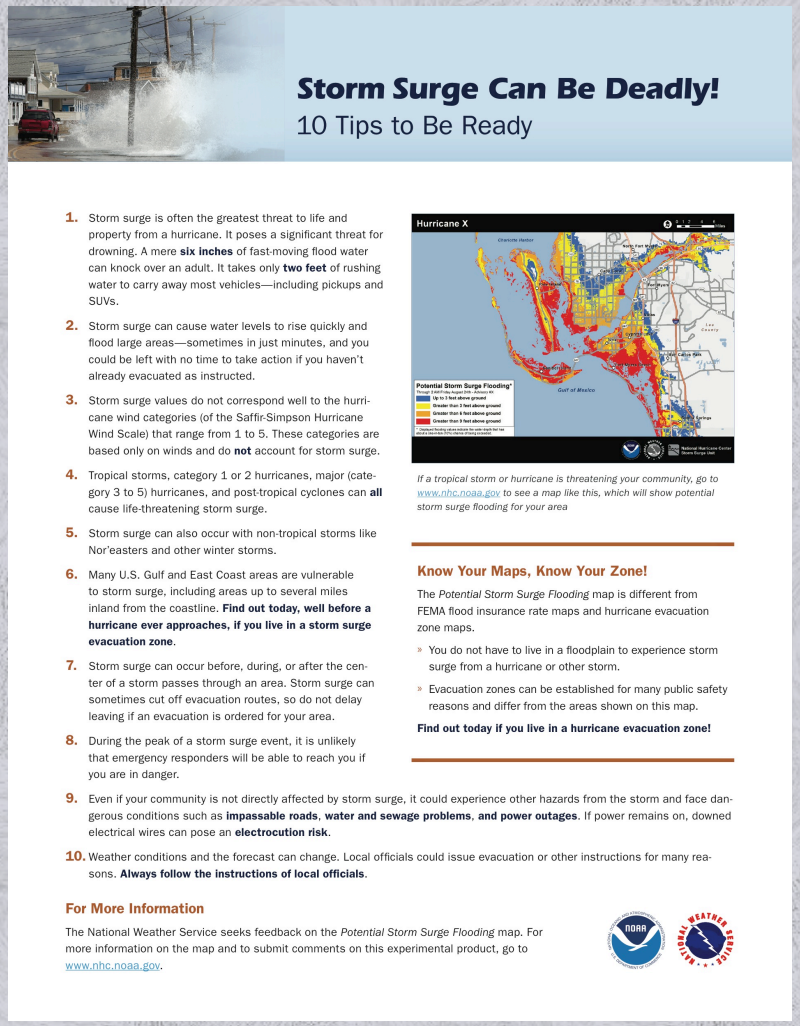
Historical Slosh Runs

http://www.nhc.noaa.gov/surge/HistoricalRuns/

New Surge Video

http://youtu.be/bRmwE0fVhV4

PDFs for Distribution



Storm Surge Can Be Deadly!
10 Tips to Be Ready

1. Storm surge is often the greatest threat to life and property from a hurricane. It poses a significant threat for drowning. A mere **six inches** of fast-moving flood water can knock over an adult. It takes only **two feet** of rushing water to carry away most vehicles—including pickups and SUVs.
2. Storm surge can cause water levels to rise quickly and flood large areas—sometimes in just minutes, and you could be left with no time to take action if you haven't already evacuated as instructed.
3. Storm surge values do not correspond well to the hurricane wind categories (of the Saffir-Simpson Hurricane Wind Scale) that range from 1 to 5. These categories are based only on winds and do **not** account for storm surge.
4. Tropical storms, category 1 or 2 hurricanes, major (category 3 to 5) hurricanes, and post-tropical cyclones can **all** cause life-threatening storm surge.
5. Storm surge can also occur with non-tropical storms like Nor'easters and other winter storms.
6. Many U.S. Gulf and East Coast areas are vulnerable to storm surge, including areas up to several miles inland from the coastline. **Find out today, well before a hurricane ever approaches, if you live in a storm surge evacuation zone**.
7. Storm surge can occur before, during, or after the center of a storm passes through an area. Storm surge can sometimes cut off evacuation routes, so do not delay leaving if an evacuation is ordered for your area.
8. During the peak of a storm surge event, it is unlikely that emergency responders will be able to reach you if you are in danger.
9. Even if your community is not directly affected by storm surge, it could experience other hazards from the storm and face dangerous conditions such as **impassable roads**, **water and sewage problems**, **and power outages**. If power remains on, downed electrical wires can pose an **electrocution risk**.
10. Weather conditions and the forecast can change. Local officials could issue evacuation or other instructions for many reasons. **Always follow the instructions of local officials**.

If a tropical storm or hurricane is threatening your community, go to www.nhc.noaa.gov to see a map like this, which will show potential storm surge flooding for your area

Know Your Maps, Know Your Zone!

The *Potential Storm Surge Flooding* map is different from FEMA flood insurance rate maps and hurricane evacuation zone maps.

- You do not have to live in a floodplain to experience storm surge from a hurricane or other storm.
- Evacuation zones can be established for many public safety reasons and differ from the areas shown on this map.

Find out today if you live in a hurricane evacuation zone!

For More Information

The National Weather Service seeks feedback on the *Potential Storm Surge Flooding* map. For more information on the map and to submit comments on this experimental product, go to www.nhc.noaa.gov.

http://www.nhc.noaa.gov/surge/resources.php

Inside the Eye

Official Blog of the National Hurricane Center

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Storm Surge–Plain and Simple (Part 1)

POSTED ON JUNE 17, 2014

You may have heard that NHC is unveiling an experimental storm surge graphic this hurricane season. We mentioned in our first blog post on May 29 that we would be discussing the background and interpretation of this graphic. There's a lot to cover, so instead of throwing it all at you in one shot, we are going to do a three-part series on the new graphic and communication on storm surge in general. Here's what we plan on covering:

Part 1: Why do we need a storm surge graphic?

Part 2: How is the storm surge graphic created?

Part 3: How should you interpret the storm surge graphic?

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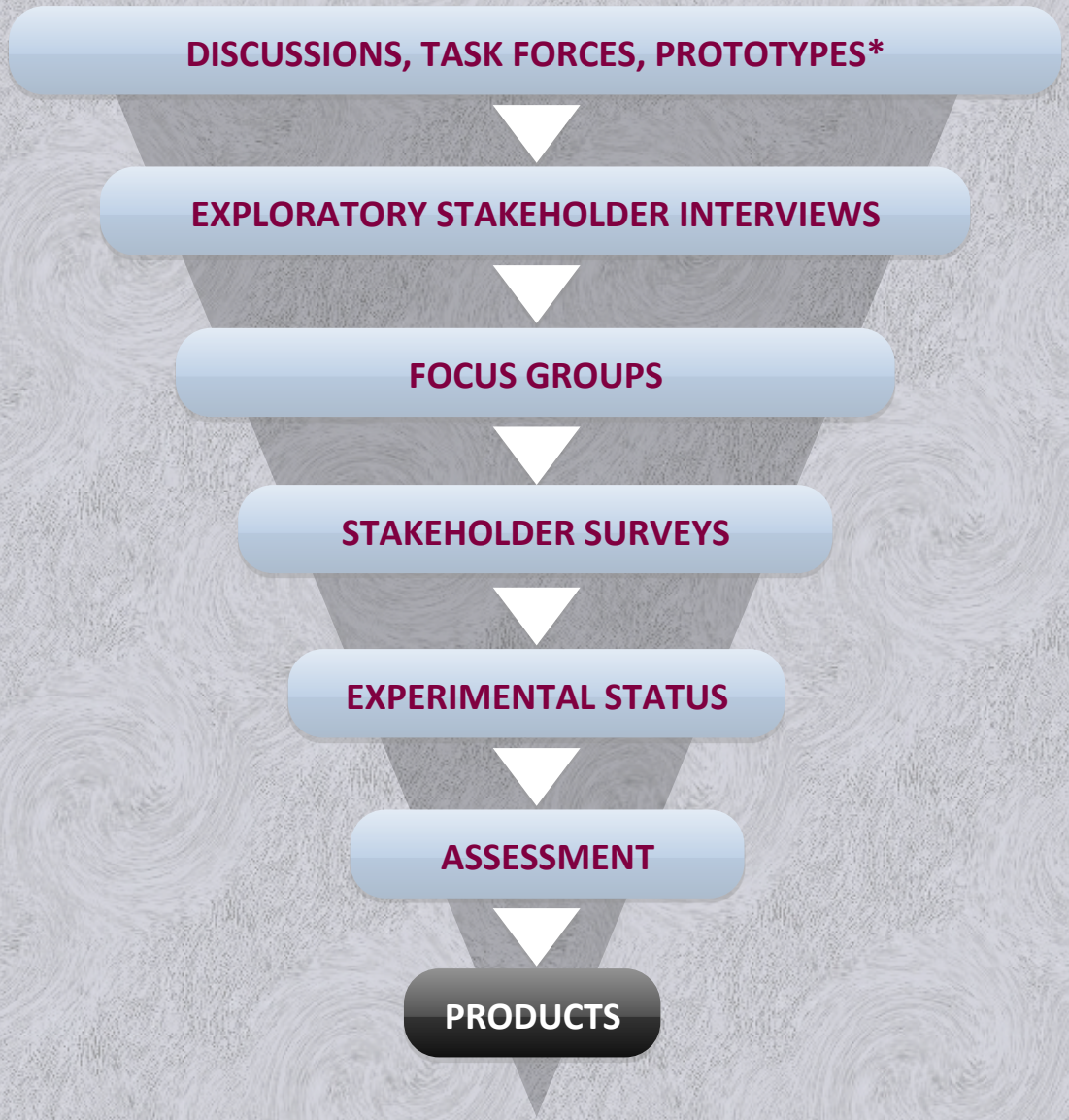
Follow

NHC Atlantic

New post on "Inside the Eye" answers the question "Why do we need a storm surge graphic?" noaanhc.wordpress.com http://t.co/5OCxKbIyJ6 2 days ago

With the Atlantic quiet, a reminder of where storms tend to form this time of year-- Western Caribbean/Gulf of Mexico http://t.co/S5BuSvS4uj 1 week ago

Follow @NHC_Atlantic



* Prototypes revised at each stage as indicated by findings

SOCIAL SCIENCE RESEARCH ON TROPICAL CYCLONE PRODUCTS

Potential Storm Surge Flooding Map

Local TC Products:

- Potential Impacts Maps (by Hazard)
- Combined Hazards Graph

Development and Testing of TC-ET Forecast Products

RESEARCH TEAM

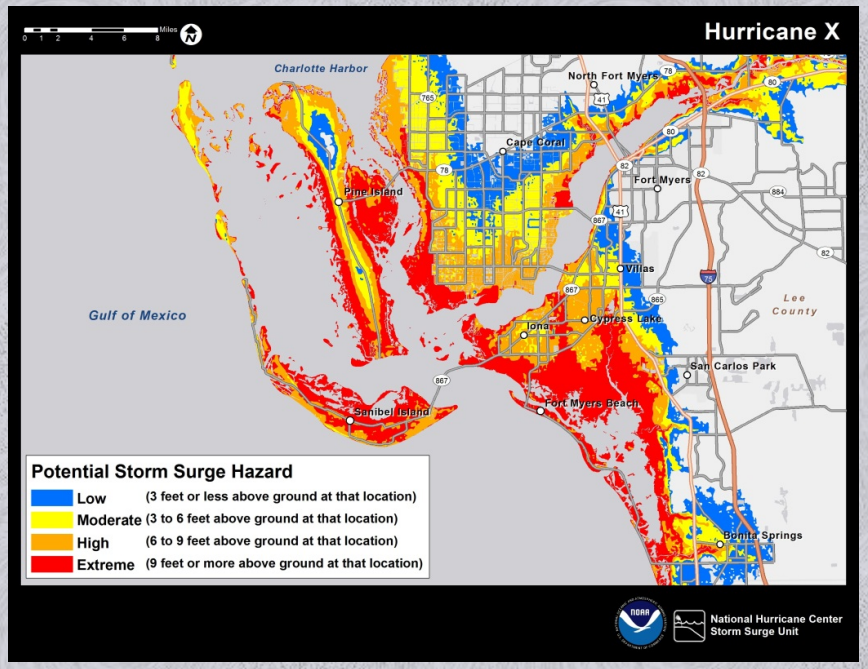
Eastern Research Group
NCAR
SocResearch Miami
Florida International Univ

Storm Surge Products

SOCIAL SCIENCE RESEARCH RESULTS ON STORM SURGE PRODUCTS

- 92% of public support **separate storm surge warning**
- 58% said they would take surge threat more seriously if there was a warning; another 32% said they probably would
- 87% felt “feet ABOVE ground level” was clear label
- Refer to surge as “xx feet HIGH,” not “xx feet deep.”

Survey Results for the Map



- Most in all surveys preferred this map over solid blue one or graduated blue one
- Problems with using "low" to describe storm surge hazard

Positive Ratings*

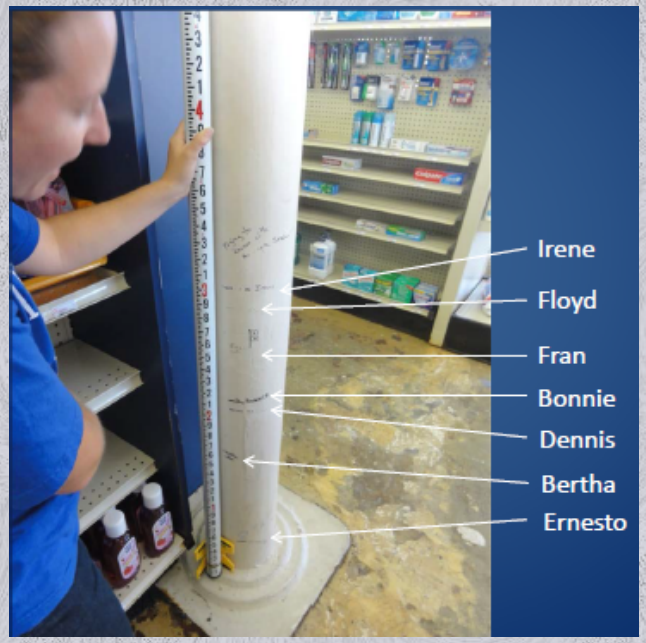
- Ease of understanding
  - 86% by EMs
  - 96% by Media
  - 77% by Public
  - 90% by WCMs
- Usefulness
  - 84% by EMs
  - 94% by Media
  - 98% by Public
  - 83% by WCMs

*Excellent, Very Good or Good

Note: Some indication that people pay more attention to legends when at lower left

Datum and Measurement

- 87% believed “feet ABOVE GROUND LEVEL” was clear
- Should be referred to as “xx feet HIGH, not DEEP



Example - Tropical Cyclone VTEC

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000
WTNT83 KNHC 222034
TCVAT3

BILL WATCH/WARNING BREAKPOINTS/ADVISORY NUMBER 30
NWS NATIONAL HURRICANE CENTER MIAMI FL AL032009
500 PM AST SAT AUG 22 2009

.HURRICANE BILL

MAZ022-230300-
/O.CON.KNHC.TR.W.1003.000000T0000Z-000000T0000Z/
500 PM AST SAT AUG 22 2009

WOODS-HOLE-MA                          41.52N 70.68W
SAGAMORE-BEACH-MA                      41.80N 70.53W

$$

MAZ023-024-230300-
/O.CON.KNHC.TR.W.1003.000000T0000Z-000000T0000Z/
500 PM AST SAT AUG 22 2009

NANTUCKET                              41.27N 70.04W
MARTHAS-VINEYARD                       41.38N 70.63W

$$

ATTN...WFO...BOX...
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Hurricane Local Statement

SIGNIFICANT POTENTIAL IMPACTS

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* WIND:

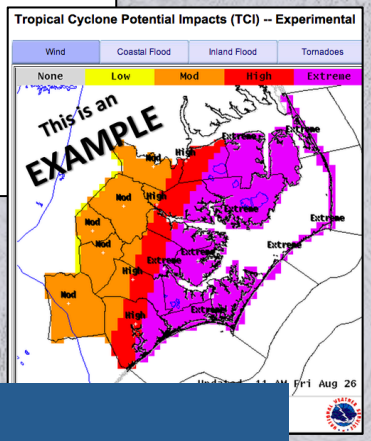
DEVASTATING TO CATASTROPHIC DAMAGE IS EXPECTED IN PORTIONS OF SOUTHEAST LOUISIANA INCLUDING BOTH THE SOUTH SHORE AND NORTH SHORE REGIONS. THIS MEANS THE POTENTIAL FOR:

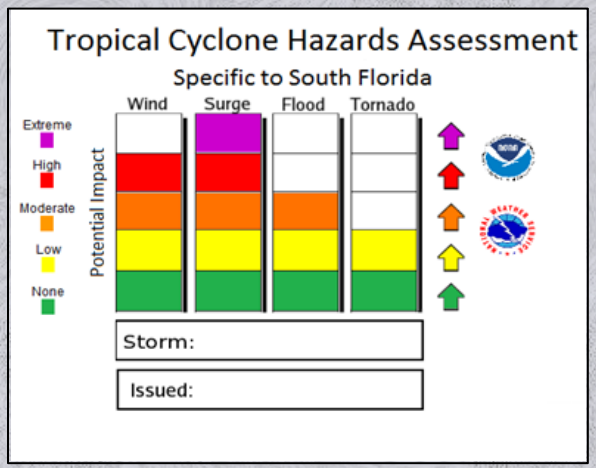
- STRUCTURAL DAMAGE TO COMMERCIAL AND RESIDENTIAL BUILDINGS WITH SOME HAVING COMPLETE WALL AND ROOF FAILURES.
- COMPLETE DESTRUCTION OF MOBILE HOMES.
- NUMEROUS ROADS IMPASSABLE DUE TO LARGE DEBRIS.
- MANY BRIDGES AND OTHER ACCESS ROUTES IMPASSABLE.
- WIDESPREAD POWER OUTAGES FOR POSSIBLY MONTHS IN HARDEST HIT AREAS.

* SURGE:

LIFE-THREATENING STORM SURGE IS POSSIBLE ACROSS PORTIONS SOUTHEAST LOUISIANA AND THE MISSISSIPPI COAST. THIS MEANS THE POTENTIAL FOR:

- LEVEE SYSTEMS THREATENED WITH POTENTIAL FOR OVERTOPPING INCLUDINGTHE METRO NEW ORLEANS RISK REDUCTION SYSTEM, RESULTING IN LIFE THREATENING FLOODING.
- STRUCTURAL DAMAGE FROM SEA WATER.
- SEVERE BEACH EROSION.
- SECTIONS OF ROADWAYS WASHED OUT AND ESCAPE ROUTES SEVERELY FLOODED.
- STRUCTURAL DAMAGE TO BUILDINGS IN FLOOD PRONE AREAS.
- DAMAGE COMPOUNDED BY FLOATING DEBRIS.
- DAMAGE TO MARINAS, DOCKS, AND PIERS.





Local TC Products

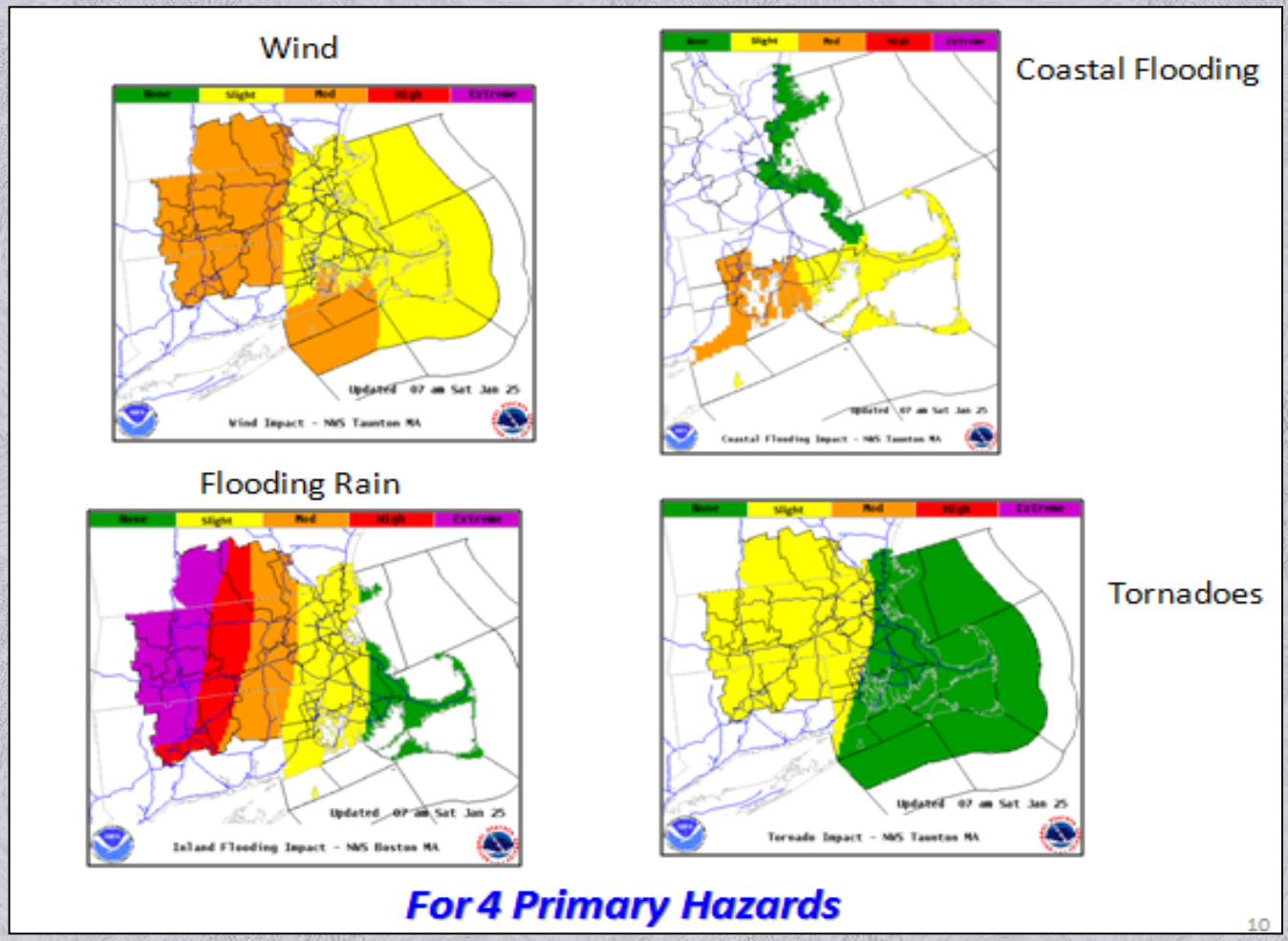
Indications From Exploratory Research On Local TC Text Products

- Strong support for separating TCV from HLS
- Support for new HLS format (sections, etc.)
- Support for locally developed impact statements
- Give forecast (threat) first, followed by impacts
- Decide if national or local thresholds will be used to determine threat and impact levels

Indications From Exploratory Research On Local TC Text Products (Continued)

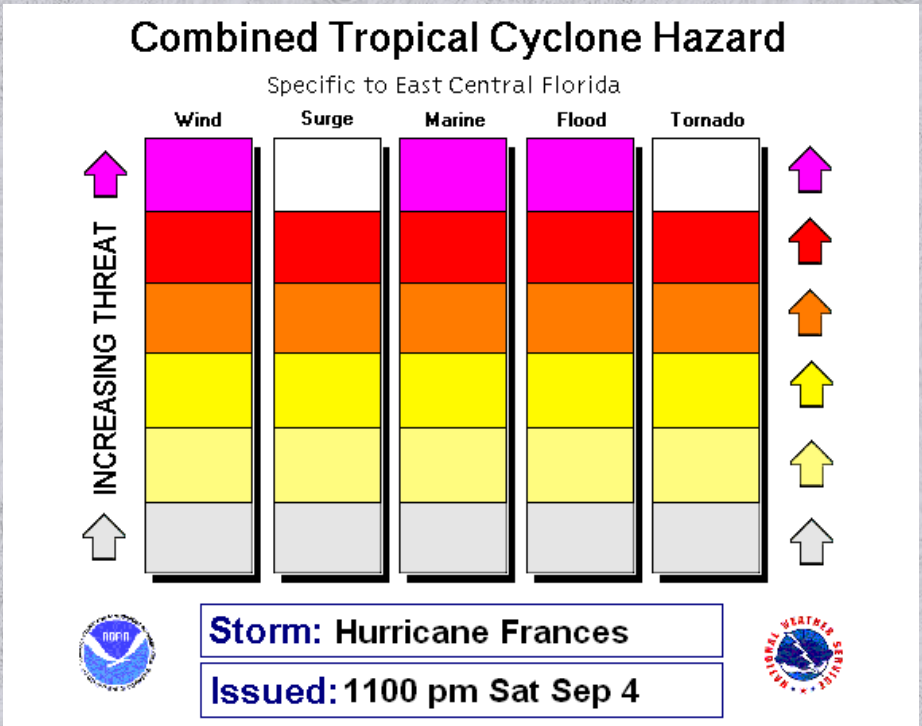
- Use website links to where preparation and evacuation information can be found rather than provide in HLS
- Reference each product to a Public Advisory and number each TCV and HLS.
- Strong support for high resolution graphics to accompany HLS (such as prototype Tropical Cyclone Impacts Graphic)

Potential Impact Maps (Four Hazards)



- Support for impact map for each hazard
- Maps need improvement – resolution, titles, legends

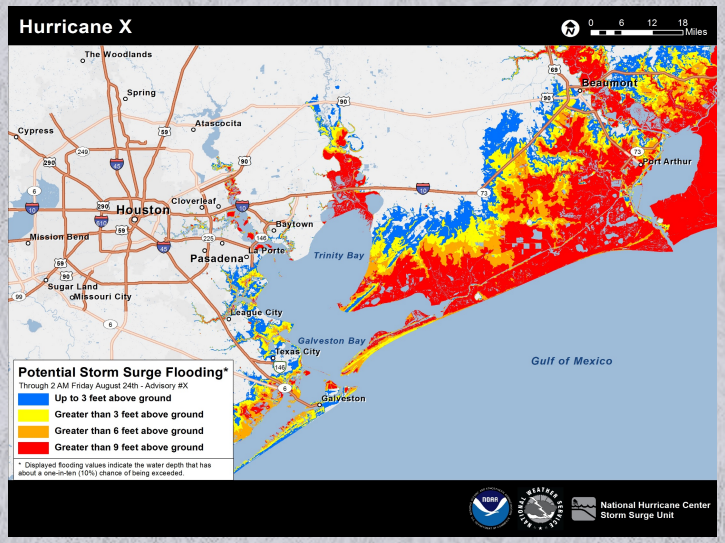
COMBINED HAZARD BAR GRAPH



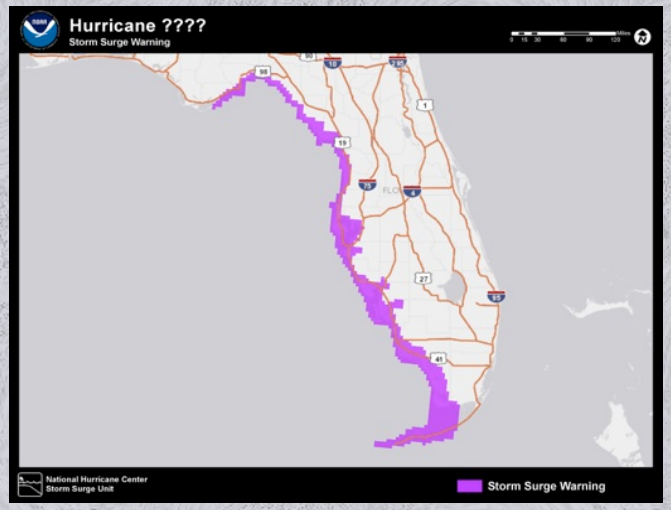
SOCIAL MARKETING

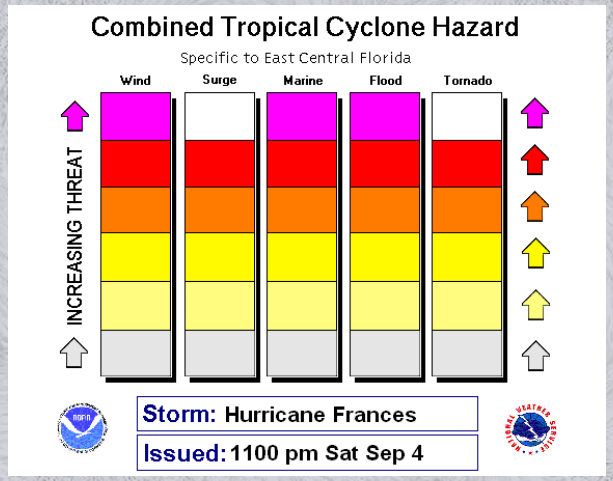
1. Select the targeted audience and desired behavior.
2. Identify the barriers and benefits
3. Develop strategies
4. Pilot the strategies

Experimental This Season



Experimental in 2015?





Words Matter

- Use common names for TCs (tropical depression, tropical storm and hurricane)
- Change name of TCV and TCIG
- Adopt common terminology for TC hazards across all products (e.g. wind, surge, rain, tornadoes)
- Develop standard terminology to describe threat levels and impact levels (e.g., low, moderate, high, etc.)

SOCIAL MARKETING

1. Select the targeted audience and desired behavior.
2. Identify the barriers and benefits
3. Develop strategies
4. Pilot the strategies
5. Implement and evaluate

- Questions
- Comments
- Ideas

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